

Elizaveta Semenova is a Senior Researcher at the Department of Electrical and Photonics Engineering and the Center for Nanophotonics - NanoPhoton at the Technical University of Denmark. Her research focuses on the development and optimization of epitaxial methods for new III-V semiconductor active materials, growth of III-V on Si, and device nanofabrication for applications in quantum and nanophotonics. In this regard, she devotes a significant part of her research to the epitaxy of quantum dots emitting in the telecom spectral range.

E. Semenova obtained a PhD degree from the A.F. Ioffe Institute (Russia), where she worked on the growth of InAs quantum dot gain media on the GaAs platform for laser applications. Later, during her postdoc research stay at the Laboratory for Photonics and Nanostructures (LPN), CNRS, E. Semenova expanded her research interests in the application of InAs/GaAs quantum dots as single photon emitters. Among other achievements, she demonstrated single photon emission in the telecom C-band from InAs quantum dots on GaAs substrate, applying the metamorphic approach for this purpose for the first time [1].

In 2009, E. Semenova joined the Technical University of Denmark and shifted her focus on the epitaxy of quantum dots on the InP-based material system with emission at the 3rd telecom window [2]. Additionally, to the broadly applied Stranski-Krastanov quantum dot growth method [3], she investigates new approaches, for example, based on droplet epitaxy [4]. Another important aspect of the research of E. Semenova is the integration of III-V compound semiconductors with the Si platform. Here, she applies monolithic integration methods [5], hybrid [6, 7], and heterogeneous integration towards an active photonic platform for scalable optical quantum information processing.

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